



Ontario

Ministry of
Transportation and
Communications

Policy
Planning and
Research Division

Urban Family Expenditure on Transportation (1953-1978)

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1. INTRODUCTION

This report was prepared with two objectives in view. First, as the title implies, it documents some of the findings evident from a preliminary analysis of the expenditure pattern on transportation among Canadian families. Although the data on family expenditure have been collected by Statistics Canada since 1953 through the Family Expenditure Survey, there is very little work done in the area specifically related to travel and transportation. The main purpose of the survey is to monitor, update and revise periodically the Consumer Price Index (CPI). With the growing concern on the impact of rising cost of transportation on the economy and the population, the analysis may provide an appreciation of the magnitude of the problem. The importance of transportation as a commodity in relation to other expenditure items such as food, shelter, clothing can be examined through the time-series data available from the survey. The changing expenditure pattern on various types of transportation services (e.g., vehicle operation, local commuting or intercity travel) among various socio-economic groups can also be studied. The second objective is to stimulate interest in the application of this valuable data base for other related studies.

2. General Description of the Family Expenditure Survey

The Family Expenditure Survey is usually conducted in January, February and March, the respondents were asked to recall all expenditures incurred during the previous calendar year. In most cases, respondents were able to recall easily expenses on large and/or expensive items. Expenditures on smaller items which were

purchased regularly were calculated based on the quantity and frequency of purchase. Since 1953, there have been 13 surveys¹ completed in the series, the time interval between surveys was about two years with few exceptions.

Families or spending units were selected from the Labour Force Survey Sampling Frame² among major urban centres. In the 1978 survey, 16 cities were included; the number of representing sample families and response rates were as follows:

<u>Cities</u>	<u>Representing sample families</u>	<u>Response rate (%)</u>
St. John's	266	78.0
Charlottetown-Summerside	198	72.8
Halifax	286	70.3
Saint John	201	58.9
Quebec	320	77.1
Montreal	726	81.3
Ottawa	247	63.8
Toronto	644	68.5
Thunder Bay	187	57.9
Winnipeg	407	82.1
Regina	233	76.1
Saskatoon	246	71.1
Calgary	316	75.4
Edmonton	383	81.3
Vancouver	454	71.8
Total	5,114	73.2

¹ years surveys were taken: 1953, 55, 57, 59, 62, 64, 67, 69, 71, 72, 74, 76, 78.

² A detailed description of the Labour Force Sampling Frame can be found in the Methodology of the Canadian Labour Force Survey, 1976, Statistics Canada, Catalogue 71-526.

During the course of the survey, the interviewer was instructed to list all members of the household and to determine the spending units which comprised the household. According to Statistics Canada, the family or spending unit is defined for the purpose of the Family Expenditure Survey to include a group of persons dependent on a common or pooled income for the major items of expense and living in the same dwelling or one financially independent individual living alone. Never married sons or daughters living with their parents are considered as part of their parents' spending unit. Spending units who were families of official representatives of foreign countries living in Canada were excluded, as were families (or unattached individuals) living full time in institutions. Part-time families (spending units existing only part of the year) were not included in the survey.

Over the duration of 25 years (1953 - 1978), there were changes made to the content of the questionnaires as well as the number of urban centres surveyed. Expenditures on certain detailed items might be grouped under different categories among surveys which rendered some difficulties in comparing time series data.

3. Scope of the Study

The information used in the present exercise was restricted to the published data made available from Statistics Canada. However, when interests in this data base begin to develop, more detailed unpublished information can be requested from Statistics Canada. Since the surveys were conducted within urban areas, the expenditure characteristics of rural families were not reflected.

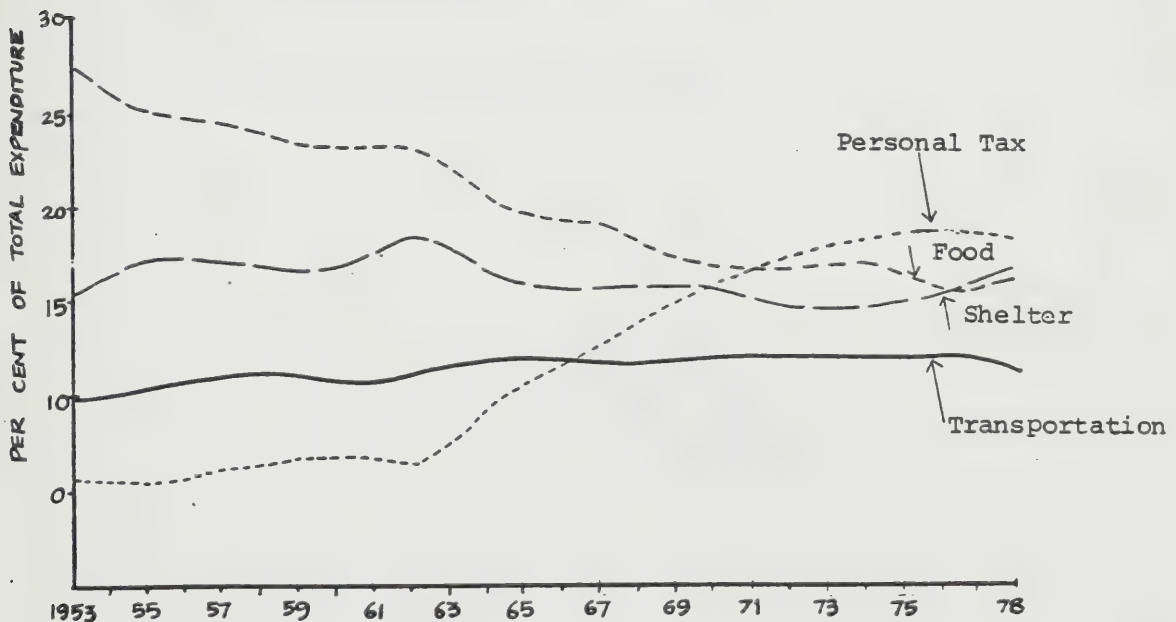
In this report, the expenditure pattern on transportation services of Canadian families was examined both in terms of its temporal variations (1953 to 1978) and variations among different socio-economic groups for 1978. The published information also identified the percentage of the sampled families that had incurred expenses on any particular items during the calendar year. For certain expenditure items, that percentage could provide additional information on the usage of transportation services of the spending units or among different socio-economic groups. For example, in 1978, 76.3% of the urban families reported expenditure on automobile and truck operation, that same percentage can be interpreted as the vehicle ownership level of the population.

In studying the temporal variation in expenditure on transportation between 1953 and 1978, the averages of all surveyed urban centres were used regardless of the number of centres included in each survey. On the other hand, the cross-sectional analysis of the expenditure characteristics of various socio-economic groups for 1978 would include all the sixteen cities as listed in Section 2.

4. Major Expenditure Items (1953 - 1978)

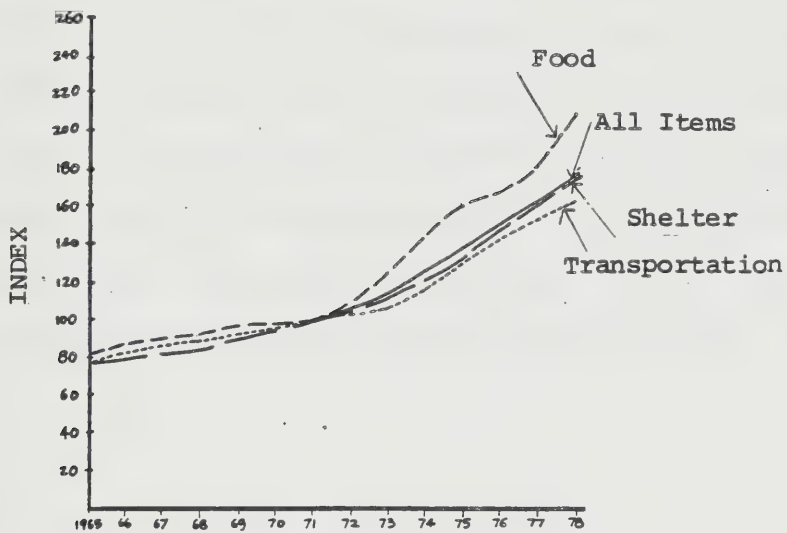
In order to place the expenditure on transportation in the proper perspective, three other major expenditure items were selected for time-series study. The total expenses on food, shelter¹, transportation and personal tax accounted for 59% of the average family expenditure in 1953; the percentage grew to 63% by 1978. Expenditure on food and personal tax showed notable changes between 1953 and 1978. The percentage of share for food decreased to 16.9% (down from 27.3% in 1953); however, personal tax took a significant jump to 18.3% (up from 5.8% in 1953). The shares for shelter and transportation remained rather stable during the same period; in fact, the percentage of share for transportation varied only between 10 and 12% among the years when the surveys were taken.

Major Expenditure Items as Percent of
Total Expenditure (1953 - 1978)



¹ Cost for shelter includes: rents, maintenance and alterations paid by spending units, insurance premiums, property taxes and assessments, mortgage interest, other accommodation, water, fuel and electricity.

The Consumer Price Index for all items increased from 80.5 (in 1965) to 175.2 (in 1978). Among the three selected major expenditure items, the greatest increase was recorded for food (208.0 in 1978). The rate of growth for shelter and transportation resembled that for the overall average.



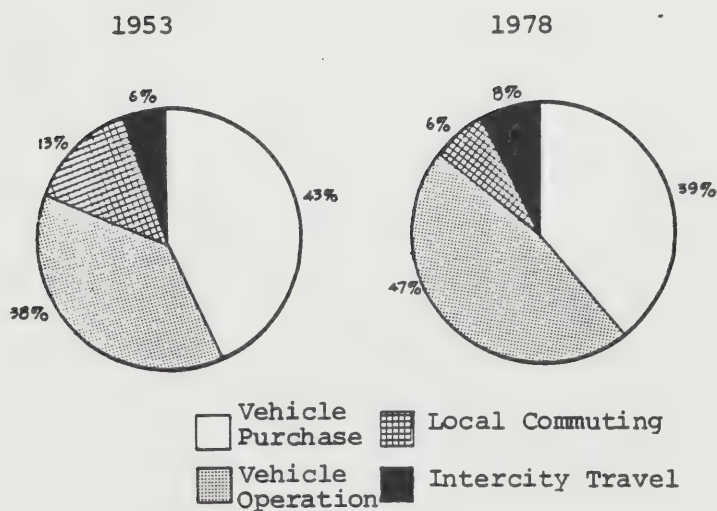
Consumer Price Index
Selected Items 1965 - 1978
(1971 = 100)

4.1 Expenditure on Transportation (1953 - 1978)

The expenditure on transportation was subdivided into four major categories which included expenses on:

- i) automobile and truck purchase;
- ii) automobile and truck operation;
- iii) local commuting; and
- iv) intercity travel.

In general, nearly all spending units reported expenditure on transportation during the calendar year; however, there were significant variations in the number of families reporting expenses on each of the above four transportation items. The expenditure figures shown in this section were averages calculated based on the total sample. The largest rise in the share of total expenditure on transportation was the cost of vehicle operation (from 38% to 47%).



Expenditure on Transportation by four categories

1953 and 1978

Expenditure on local commuting declined from 13% to 6% while the share of intercity travel expenditure showed a slight increase within the 25-year period. Since the expenditure on vehicle operation did not distinguish between local and long distance travel, the expenditure on local commuting and intercity travel was restricted to the usage of public carriers (i.e., public transit, intercity bus, train and airplanes).

4.2 Expenditure on Vehicle Purchase (1953 - 1978)

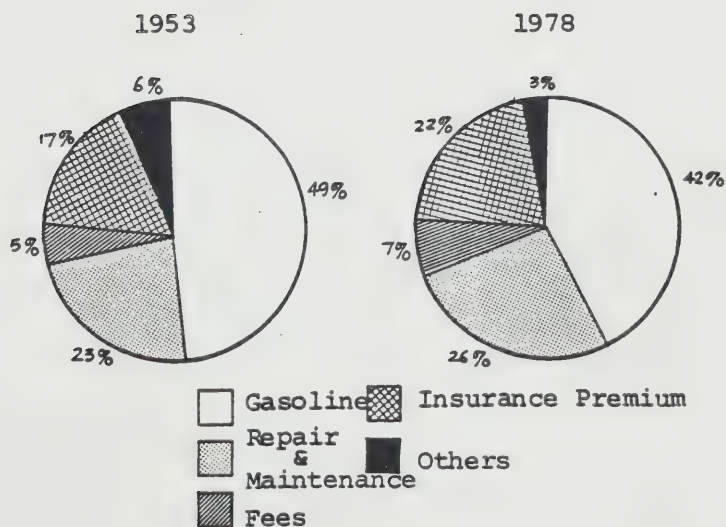
As mentioned in the previous section, there were variations in the number of spending units reporting expenses on items such as vehicle purchase, vehicle operation, local commuting and intercity travel during a calendar year. In 1953, only 16% of the sampled families reported the purchase of a vehicle and in 1978 it increased to over 21%. The expenditure on this category included both the purchase of a new vehicle as well as a used one. In 1978, about 3% of the families reported the purchase of a truck.

Other related statistics were the purchase of bicycles and the usage of rental or leased vehicles. In 1964, about 8% of the spending units recorded bicycle purchase and by 1978, the percentage of families reporting such purchases increased to 19%. During the same time period, the percentage of families who reported usage of rental and leased vehicles increased from 3% to 9%.

4.3 Expenditure on Vehicle Operation (1953 - 1978)

Under the category of expenditure on vehicle operation, the following items were included: gasoline, lubrication, tires, maintenance and repairs, vehicle insurance premiums, driver licence and registration fees, etc. Although the cost of gasoline accounted for the largest share of the total expenditure on vehicle operation, its importance has dropped from near 50% in 1953 to 42% in 1978. The share of insurance premium rose from 17% to 22%. Repair and maintenance increased slightly from 23% to 26%. Fees

The percentage of families reporting expenditure on vehicle operation was about 50% in 1953 and rose to over 76% in 1978; the increase could be interpreted as the growth of car ownership level among Canadian families during the same period.



Expenditure on Vehicle Operation
1953 and 1978

4.4 Expenditure on Local Commuting (1953 - 1978)

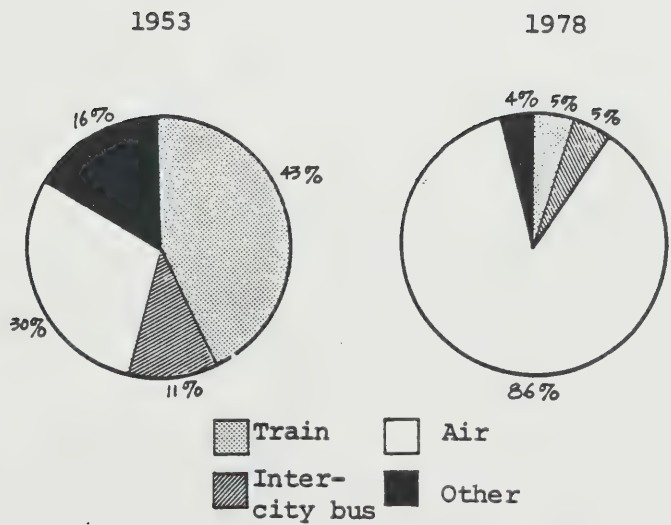
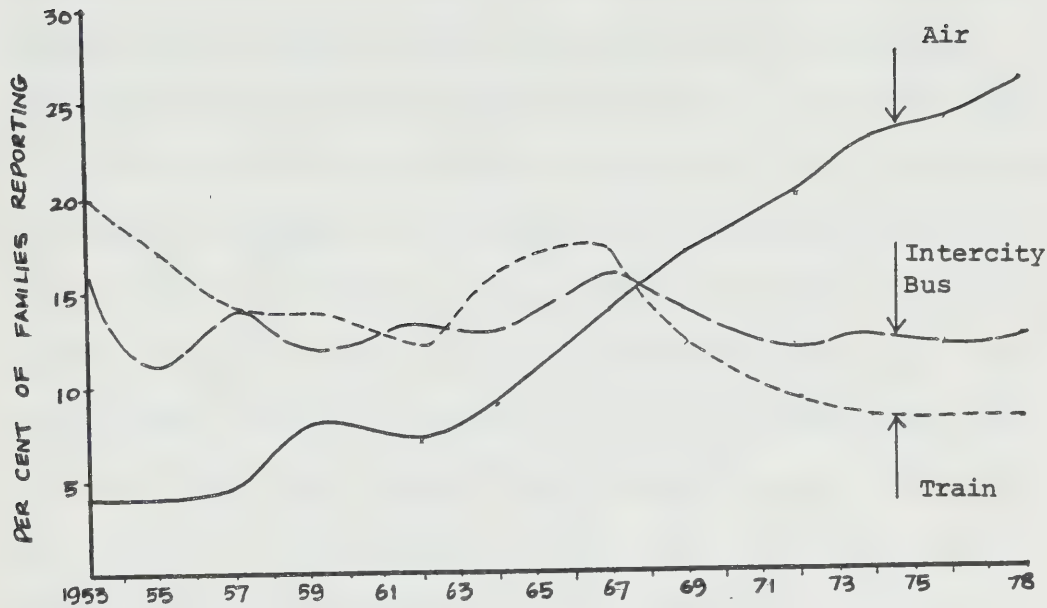
Expenditure on local commuting included only expenses incurred on the use of public transit and taxicabs. In the earlier surveys, usage of streetcar, bus and subway was combined with that of commuter bus and train. In 1953, about 92% of the families reported expenditure on public transit as compared to 75% in 1978 (67% - streetcar, bus and subway, 8% - commuter bus and train). On the other hand, the percentage of families reporting the usage of taxicabs for local commuting showed no significant changes throughout the study period; it varied between 38 and 40%.

4.5 Expenditure on Intercity Travel (1953 - 1978)

Although there was no specific definition for intercity travel, expenditure on this particular item would include those expenses incurred on non-commuting and long distance trips. The percentage of families reporting expenditure on intercity travel rose from 30% (in 1955) to 41% (in 1978). During the same time period, there was significant shift in the choice of travel modes for intercity travel. In 1953, based on the percentage of families reporting, the train was the most dominant mode (20%), followed by the bus mode (16%) and air travel only accounted for 4%. By 1978, the percentage of families reporting expenditure on the rail mode decreased to 8%, the bus mode fell to 13% and the air mode grew more than 6 times to 26%. The dominance of long distance travel by rail began its decline at the beginning of the study period but showed some signs of recovery between 1962 and 1967. On the other hand, intercity travel by the air mode established its importance in the late fifties and early sixties with the introduction of jet-propelled aircraft. The shift of mode used for intercity travel was also reflected from the changes in the percentage distribution of expenditure for different modes. For example, the expense for rail travel which accounted for over 40% of the total intercity travel expenditure in 1953 shrank to only 5% in 1978. For the same period, the share of the expense on air travel grew from 30% to 86%, although in most cases, for the same distance travelled, the cost of air fare is generally higher than train fare.

Percent of Families Reporting
Expenditure on Intercity Travel

(1953 - 1978)



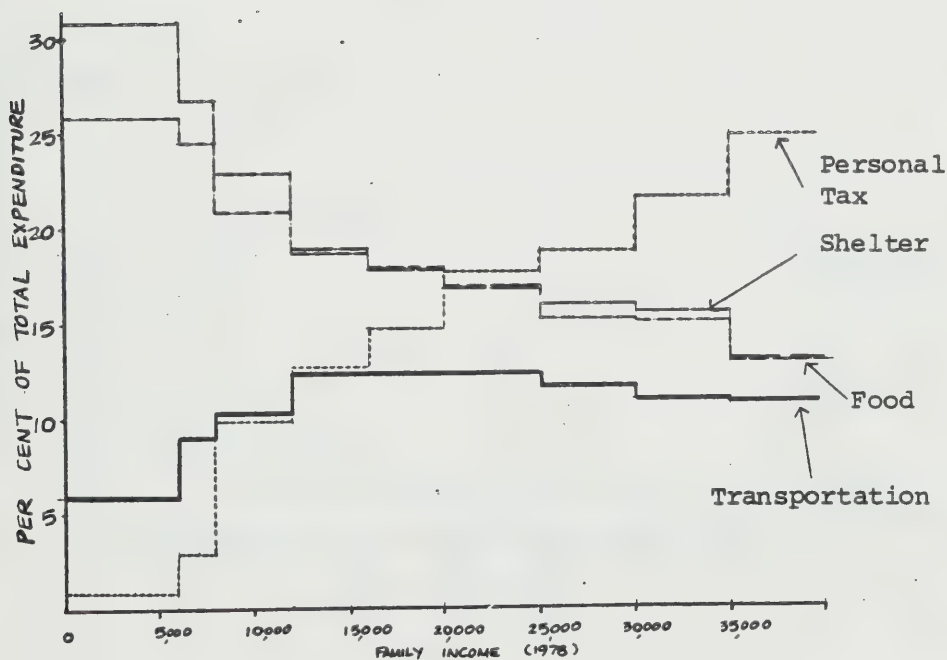
Expenditure on Intercity Travel by Mode
1953 and 1978

5. Expenditure Pattern of Various Income Groups (1978)

The previous sections discussed very briefly the temporal variation of the expenditure pattern on transportation among Canadian families over a 25-year period. The statistics thus employed represented those of the average spending unit. Since the ability to purchase any expenditure items depended very much on the income level of the families, the following sections examined the expenditure pattern of different income groups as recorded in the 1978 survey. It was intended to be a cross-sectional rather than time-series study. However, it should be pointed out that income was only one of the major factors that determine the purchasing habits of any family. Other important factors were: family size, life cycle of the family, occupation and education level of the head of the household, etc.

5.1 Major Expenditure Items by Family Income (1978)

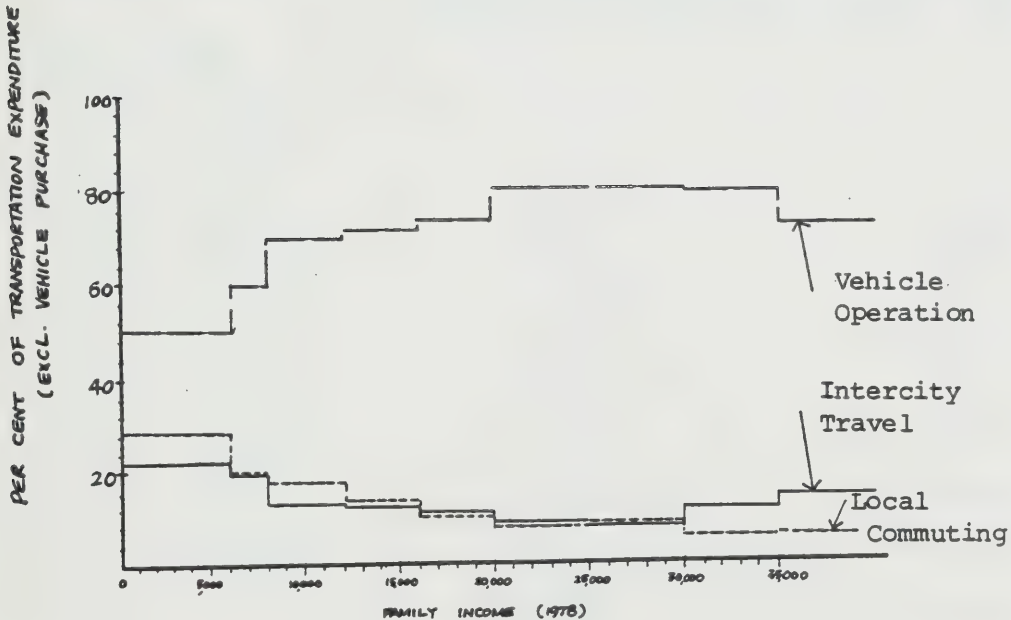
Statistics Canada grouped the family income into nine categories (under \$6,000, \$6,000 - 7,999, \$8,000 - 11,999, \$12,000 - 15,999, \$16,000 - 19,999, \$20,000 - 24,999, \$25,000 - 29,999, \$30,000 - 34,999, and \$35,000 and over). For the lowest income group (under \$6,000) expenses on food, shelter and transportation accounted for about 63% of the total family expenditure. On the other end of the scale, the highest income group only allocated 38% of the total expenditure for those three major items. The share of transportation cost as percent of total family expenditure did not vary significantly from 10 - 12% for all families with income over \$12,000.



Major Expenditure Items as Percent of
Total Expenditure by Family Income (1978)

5.2 Expenditure on Transportation by Family Income (1978)

Since two of the income groups (under \$6,000, \$6,000 - 7,999) did not report any vehicle purchase in 1978, that item was excluded from the calculation of the total transportation expenditure for the different income categories. For all income groups, expenses on vehicle operation accounted for more than 50% of the total transportation expenditure and the shares increased as the family income increased. The lowest income groups with a low car ownership level had to allocate a larger portion of their transportation expenditure to the use of public transit for local commuting and public carriers for intercity travel.



Expenditure on Transportation
by Family Income (1978)

5.3 Expenditure on Vehicle Purchase by Family Income (1978)

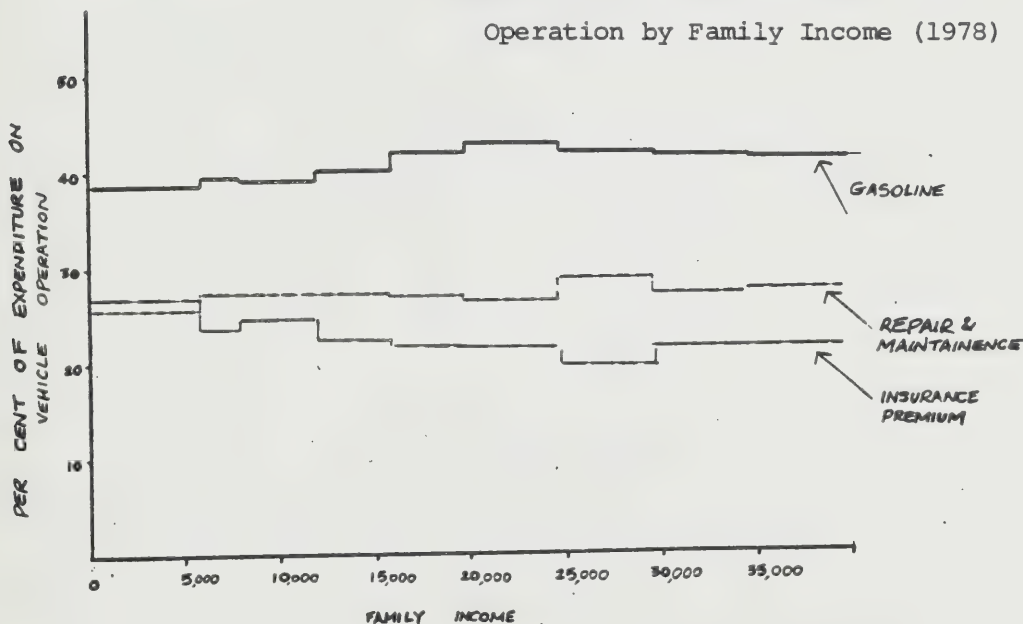
The following shows the percent of families reporting a purchase of automobiles in 1978 and the average price of that purchase (in 1978 dollars). The purchase includes both new and used vehicles and the cost is the net purchase price after deducting trade-in allowance (or sale) and discount. Extra equipment and accessories bought when the vehicle was purchased are included in the purchase price. With the exception of the families earning \$30,000 - \$34,000, the percent of families reporting vehicle purchases and the average price of the purchase increased as the family income increased.

<u>Family Income</u>	<u>% of family reporting purchase of automobile</u>	<u>Average price of purchase (1978 dollars)</u>
under \$6,000	-	-
\$6,000 - 7,999	-	-
\$8,000 - 11,999	12.5%	\$2,388
\$12,000 - 15,999	20.9%	\$2,749
\$16,000 - 19,999	22.6%	\$3,233
\$20,000 - 24,999	24.4%	\$3,400
\$25,000 - 29,999	30.5%	\$3,786
\$30,000 - 34,999	24.9%	\$4,236
\$35,000 and over	33.0%	\$5,448
Total	21.2%	\$3,731

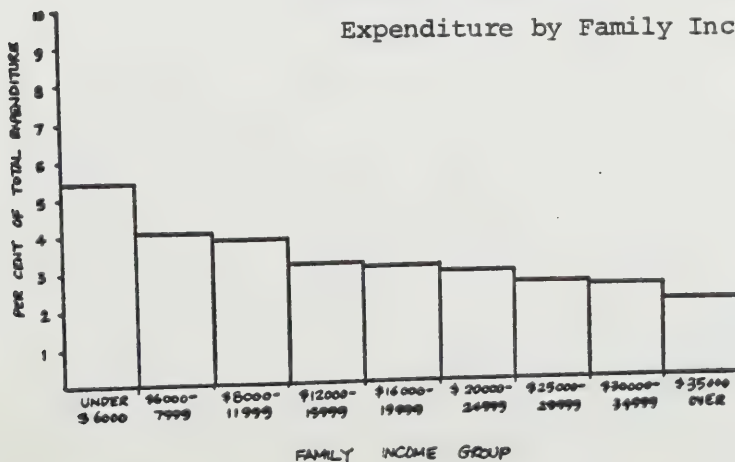
5.4 Expenditure on Vehicle Operation by Family Income (1978)

It is interesting to note that in terms of percent distribution of expense on gasoline, repair and maintenance and insurance premium, there was very little variation among families in each income group. It is not apparent from the 1978 data that families with lower incomes had to allocate a greater portion of the vehicle operating expenditure to repair and maintenance due to the fact that their automobiles were generally older and not in top operating condition. However, as shown below, the lower income families had to spend a higher portion of their income for the purchase of gasoline for operating their automobiles than those families in the higher income brackets.

Expenditure on Major Items on Vehicle
Operation by Family Income (1978)



Purchase of Gasoline as percent of total
Expenditure by Family Income (1978)

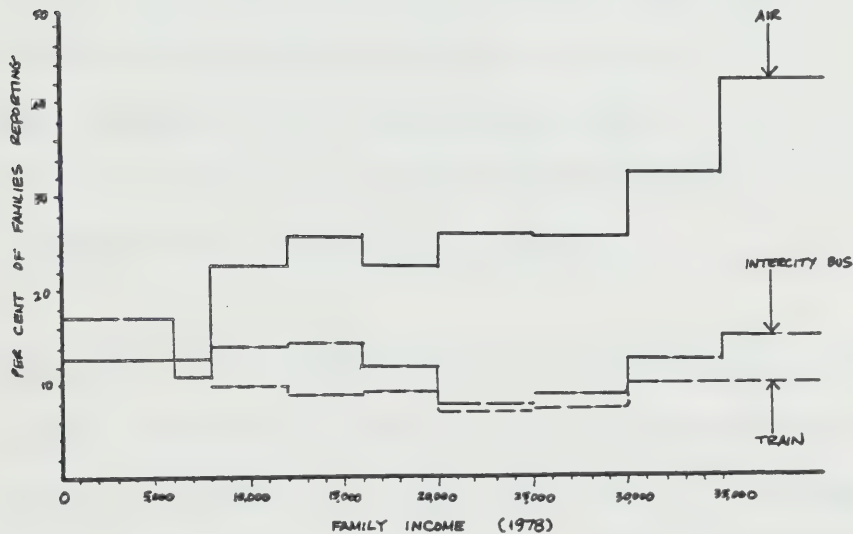


5.5 Expenditure on local commuting by Family Income (1978)

Between 65 - 75% of the families in all income groups reported expenditure on local commuting by public transit (streetcar, bus, subway, commuter bus and train). About 40% of all families in each income category also used taxicabs for commuting. However, the lowest income group had to allocate a greater portion of the commuting expenses to the use of taxicabs than the other groups to compensate for the low car ownership among the families.

5.6 Expenditure on Intercity Travel by Family Income (1978)

The expenditure pattern on intercity travel among various income groups was quite different from that on local commuting. The two lowest income groups did not report any travel by train in 1978. About 10% of the families in the other income categories reported expenses on rail travel. 17% of the families with income less than \$6,000 incurred expenses on the bus mode. Over 40% of the families with the highest income had travelled by air as compared to 13% among the families earning less than \$8,000.



Percent of Families Reporting Expenditure
on Intercity Travel by Family Income (1978)

6. Conclusion

The brief discussion on the expenditure pattern on transportation through time and among various income groups reveals several interesting findings. During the 25-year period (1953 - 1978), the average Canadian family spent about 10-12% of their gross family income to buy various types of transportation services. Given the high car ownership pattern among the population, the largest rise in the share of expenditure on transportation was the cost to operate our vehicles. In 1978, the cost of gasoline accounted for 42% of the total vehicle operation expense, a drop of eight percentage points from 1953. However, with the increasing cost of petroleum products, today's picture could be quite different. In 1978, the lowest income group had to spend about 5% of their average family income on gasoline as compared to only 2% from families in the higher income brackets. Families with an income less than \$6,000 also allocated proportionately higher share of local commuting expenditure on taxicabs.

Hopefully, the observations and findings from the preliminary analysis documented in this report will stimulate interest in this valuable data base for further application. For example, a disaggregation of the expenditure on transportation by geographical areas within an urban centre may reveal certain relationships between shelter cost and transport cost among families. Another area of potential interest is the study of money budget and time budget related to transportation. However, due to budgetary constraints, the next Family Expenditure Survey would not be taken by Statistics Canada until 1983, for the calendar year of 1982.

7. Data Source:

1. Dominion Bureau of Statistics, City Family Expenditure, 1953, Cat. 62-509.
2. Dominion Bureau of Statistics, City Family Expenditure, 1955, Cat. 62-510.
3. Dominion Bureau of Statistics, City Family Expenditure, 1957, Cat. 62-517.
4. Dominion Bureau of Statistics, Urban Family Expenditure, 1959, Cat. 62-521.
5. Dominion Bureau of Statistics, Urban Family Expenditure, 1962, Cat. 62-525.
6. Dominion Bureau of Statistics, Urban Family Expenditure, 1964, Cat. 62-527.
7. Dominion Bureau of Statistics, Urban Family Expenditure, 1967, Cat. 62-530.
8. Dominion Bureau of Statistics, Family Expenditure in Canada, Vol. 2, All Canada: Urban and Rural, 1969, Cat. 62-535.
9. Statistics Canada, Urban Family Expenditure, 1972, Cat. 62-541.
10. Statistics Canada, Urban Family Expenditure, 1974, Cat. 62-544.
11. Statistics Canada, Urban Family Expenditure, 1976, Cat. 62-547.
12. Statistics Canada, Family Expenditure in Canada, Vol. 2, Major Urban Centres: sixteen cities, 1978, Cat. 62-550.
13. Statistics Canada, Consumer Prices and Price Index, various issues.

